



***NPSafe***

*Safe Acts & Attitudes Foster Excellence*

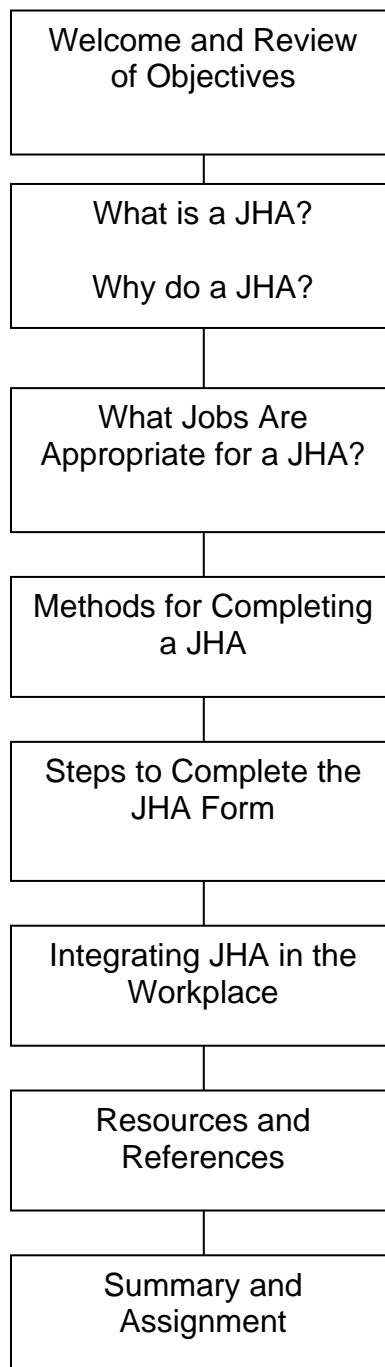
# **Job Hazard Analysis: Identifying Risks Sooner Rather Than Later!**

## **Participant Guide**

Prepared by  
NPS Risk Management Division

Revised January 6, 2005

## **Job Hazard Analysis: Identifying Risks Sooner Rather Than Later! Course Map**



## How to Interact with the Instructor

We encourage you to ask questions and share your comments with the instructors throughout this TELNPS course.

If you were physically in the classroom with the instructor, you would raise your hand to let him know you had a question or comment. Then you would wait for the instructor to recognize you and ask for your question. We are all familiar with that “protocol” for asking questions or making comments.

With TELNPS courses there is also a “protocol” to follow to ensure you can easily ask questions and others can participate as well. It may seem a little strange at first asking a question of a TV monitor. Remember, it is the instructor you are interacting with and not the monitor. As you ask more questions and participate in more TELNPS courses, you will soon be focusing only on the content of your question and not the equipment you are using to ask it.

As part of the TEL station equipment at your location, there are several push to talk microphones. Depending on the number of students at your location, you may have one directly in front of you or you may be sharing one with other students at your table.

*When you have a question, press the push to talk button and say,  
“Excuse me [instructor’s first name], this is [your first name]  
at [your location]. I have a question (or I have a comment).”  
Then release the push to talk button. This is important.  
Until you release the button, you will not be able to hear the instructor.*

The instructor will acknowledge you and then ask for your question or comment. Stating your name and location not only helps the instructor, but also helps other students who are participating at different locations to get to know their classmates.

**Course Objectives*****Notes***

At the conclusion of this course, you should be able to:

1. State the purpose of a Job Hazard Analysis (JHA).
2. Explain when a JHA should be conducted.
3. Demonstrate the process of conducting a JHA.
4. List at least three ways to integrate the use of JHA's in the workplace.
5. List references and resources available to assist in conducting JHA's.

## What is a JHA?

A \_\_\_\_\_ is the potential for harm. In practical terms, a \_\_\_\_\_ often is associated with a condition or activity that, if left uncontrolled, can result in an injury or illness.



### **What Hazards Do Employees At Your Park Face?**

Review the hazards in Appendix A of this participant guide (excerpt from OSHA Booklet 3071).

Think of all the employees at your location and all of the jobs or tasks that they do. Now, as you look over that appendix, circle each of the hazards that you think apply to any of jobs performed by employees at your location.

Take a minute or two to quickly do that. Record how many you circled on in the space below. Be prepared to share your response.

There were \_\_\_\_\_ hazards that apply to the jobs performed by employees at our park.

### **Job Hazard Analysis (JHA)**

A **job hazard analysis** or **JHA** is a technique that focuses on job tasks as a way to identify hazards before they occur. JHA is a multi-step process designed to study and analyze a job. It breaks down a job into steps, which provide a means of identifying and then eliminating or controlling associated hazards. The JHA results in a detailed written procedure for safely completing a particular job.

The JHA is the **process**. The completed JHA form is a **product** of the process.

**Remember, the process is more important than the product!**

**Why Do a JHA?****Notes**

It is the right thing to do! It will help us to prevent injuries to our employees and co-workers.

**CFR 1960**

*1960.8(a) - The head of each agency shall **furnish** to each employee **employment** and a place of employment which are **free from recognized hazards** that are causing or are likely to cause death or serious physical harm.*

**DO - 50B & RM Safety and Occupational Health Program**

*Each operating unit will **develop and implement a system** by which **major activities** and **individual jobs** are **analyzed**.*

*The Job Hazard Analysis (JHA) system **will be used in the planning and completion of work assignment and projects** as to:*

- *The sequence of work*
- *The hazards associated with the sequence (actions)*
- *The methods or safeguards to prevent, reduce and/or control at-risk behaviors and reinforce safe behaviors*

**What Jobs Are Appropriate for a JHA?****Notes**

Asking the following questions helps to decide which jobs should be our highest priority for conducting JHAs:

- What jobs have the highest injury or illness rates?
- What jobs have the potential to cause severe or disabling injuries or illness, even if there is no history of previous accidents?
- Are there jobs in which one simple human error could lead to a severe accident or injury?
- Are there jobs that are new to your operation or have undergone changes in processes and procedures?
- What jobs have resulted in “near misses” with employees?

**Prioritizing Jobs/Tasks To Conduct JHAs**

List five jobs/tasks that are performed by employees at your park. After listing the jobs/tasks, review the questions above and prioritize the order in which you would conduct the JHAs. Be prepared to share the jobs/tasks that you listed and why you prioritized them as you did.

Job/Task	Priority for Conducting JHA

**What Methods Do You Use to Conduct a JHA?*****Notes***

Three methods are commonly used to conduct a JHA.

1. \_\_\_\_\_. A supervisor selects a worker, or workers, who have good knowledge of the job and are cooperative in answering questions to participate. The worker(s) are observed completing the job, and both the worker(s) and the supervisor participate in the analysis process. This is the best method to use in developing a JHA, but it is not always possible.
2. \_\_\_\_\_. Instead of actually watching the job, a group of supervisors and employees collectively analyze a job in a shop setting. All involved must be familiar with the selected job in order to offer comments and agree with the established procedure. This is the second-best method to use in developing JHA.
3. \_\_\_\_\_. Here, a supervisor or employee recalls job steps and hazards and then asks others familiar with the job if the steps and procedures are correct.



**What Are the Steps to Complete the JHA Form?****Notes**

Refer to the Sample JHA Form in Appendix B

The first column is **Sequence of Job Steps**. The supervisor should ask the question, "What is the first thing you do when you start the job?" The next question should be, "What do you do next?" and so on until the job is completed. Each step can combine a variety of actions that are necessary to complete that step. Most JHAs contain 6 to 10 steps, and the information in this section is deliberately kept brief. Identify each step with a number that will be carried across the form to the other columns (see JHA Form).

The second column is **Identifying potential hazards**. For each step, two types of information need to be recorded in the middle column – the actual hazard itself and the injury source.

Remember, the hazard alone does not cause the injury. The injury source helps to identify the action that causes the injury. Keep words to a minimum. Identify the injury source by the two initials, and then identify the hazard (see JHA Form).

The third column is **Safe Actions or Procedures**. The Safe Action or Procedure column combines the basic steps and potential hazards into a correct safe working procedure. The entire correct job procedure and the method to avoid injury must always be included (see JHA Form).

Once a rough-draft JHA has been completed, the JHA should be reviewed by a branch chief or even a division chief, someone who understands the importance of the complete JHA to employee safety. When first implementing a JHA program, many documents will likely be returned. However, the more one works with JHA, the better the quality of the finished product.

**How Do You Integrate the Use of the JHA In the Workplace?****Notes**

Some suggestions for integrating the use of JHAs in the workplace include:

- Setting a specific time each week or month that employees will work on JHAs.
- At the beginning of each work day when job assignments are given
- Immediately before performing the task or job covered by the JHA.
- At the end of each work day when employees come back to the shop before heading home.
- When planning a large task or completing a site safety plan.
- During a designated safety week

**Brainstorm for 90 Seconds**

You probably have some ideas as to what will work well with your employees and co-workers. Take 90 seconds. Review the list above, use some of those ideas if you think they would be appropriate for your situation. See if you can add to the list. What are some realistic ways that you can integrate the use of JHAs into your work processes. List any additional ideas below.

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## What References and Resources Are Available to Assist in Conducting JHAs?

## Notes

### NPS Risk Management Web Site



### OSHA Booklet 3071

Download from [www.OSHA.gov/publications/3071.pdf](http://www.OSHA.gov/publications/3071.pdf)

Our park safety officer is \_\_\_\_\_

Our regional risk manager is \_\_\_\_\_

**Course Assignment*****Notes***

To receive credit for the course, we are going to ask that you complete a JHA for a job that you do at your park, or one that employees that you supervise do.

There is a blank form for you to use in Appendix 4. You can also download the MS Word version of this from the NPS Risk Management Web Site.

After you have completed the form, go to:

[www.GovLearning.net/NPS](http://www.GovLearning.net/NPS) and input the information from your form.

## Appendix A, OSHA 3071 Excerpt, Table of Hazards

Hazards	Hazard Description
Chemical (Toxic)	A chemical that exposes a person by absorption through the skin, inhalation, or through the blood stream that causes illness, disease, or death. The amount of chemical exposure is critical in determining hazardous effects. Check Material Safety Data Sheets (MSDS), and/or OSHA 1910.1000 for chemical hazard information.
Chemical (Flammable)	A chemical that, when exposed to a heat ignition source, results in combustion. Typically, the lower a chemical's flash point and boiling point, the more flammable the chemical. Check MSDS for flammability information.
Chemical (Corrosive)	A chemical that, when it comes into contact with skin, metal, or other materials, damages the materials. Acids and bases are examples of corrosives.
Explosion (Chemical Reaction)	Self explanatory.
Explosion (Over Pressurization)	Explosion Sudden and violent release of a large amount of gas/energy due to a significant pressure difference such as rupture in a boiler or compressed gas cylinder.
Electrical (Shock/ Short Circuit)	Contact with exposed conductors or a device that is incorrectly or inadvertently grounded, such as when a metal ladder comes into contact with power lines. 60Hz alternating current (common house current) is very dangerous because it can stop the heart.
Electrical (Fire)	Use of electrical power that results in electrical overheating or arcing to the point of combustion or ignition of flammables, or electrical component damage.
Electrical (Static/ESD)	Electrical The moving or rubbing of wool, nylon, other synthetic fibers, and even flowing liquids can generate static electricity. This creates an excess or deficiency of electrons on the surface of material that discharges (spark) to the ground resulting in the ignition of flammables or damage to electronics or the body's nervous system.
Electrical (Loss of Power)	Safety-critical equipment failure as a result of loss of power.
Ergonomics (Strain)	Damage of tissue due to overexertion (sprains and strains) or repetitive motion.
Ergonomics (Human Error)	A system design, procedure, or equipment that is error-provocative. (A switch goes up to turn something off).
Excavation (Collapse)	Soil collapse in a trench or excavation as a result of improper or inadequate shoring. Soil type is critical in determining the hazard likelihood.
Fall (Slip, Trip)	Conditions that result in falls (impacts) from height or traditional walking surfaces (such as slippery floors, poor housekeeping, uneven walking surfaces, exposed ledges, etc.)
Fire/Heat	Temperatures that can cause burns to the skin or damage to other organs. Fires require a heat source, fuel, and oxygen.

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**Appendix A, OSHA 3071 Excerpt, Table of Hazards**

Hazards	Hazard Description
Mechanical/Vibration (Chaffing/Fatigue)	Vibration that can cause damage to nerve endings, or material fatigue that results in a safety-critical failure. (Examples are abraded slings and ropes, weakened hoses and belts.)
Mechanical Failure	Self explanatory; typically occurs when devices exceed designed capacity or are inadequately maintained.
Mechanical	Skin, muscle, or body part exposed to crushing, caught-between, cutting, tearing, shearing items or equipment.
Noise	Noise levels (>85 dBA 8 hr TWA) that result in hearing damage or inability to communicate safety-critical information.
Radiation (Ionizing)	Alpha, Beta, Gamma, neutral particles, and X-rays that cause injury (tissue damage) by ionization of cellular components.
Radiation (Non-Ionizing)	Ultraviolet, visible light, infrared, and microwaves that cause injury to tissue by thermal or photochemical means.
Struck By (Mass Acceleration)	Accelerated mass that strikes the body causing injury or death. (Examples are falling objects and projectiles.)
Struck Against	Injury to a body part as a result of coming into contact of a surface in which action was initiated by the person. (An example is when a screwdriver slips.)
Temperature Extreme (Heat/Cold)	Temperatures that result in heat stress,exhaustion, or metabolic slow down such as hypothermia.
Visibility	Lack of lighting or obstructed vision that results in an error or other hazard.
Weather Phenomena (Snow/Rain/Wind/Ice)	Self explanatory.

### 3.1 JOB HAZARD ANALYSIS (JHA)

JOB HAZARD ANALYSIS – FORM 2.1				
JOB HAZARD ANALYSIS (JHA)			Date: February 28, 2003	New JHA Revised JHA
Park Unit: Best National Park	Division: Maintenance Division	Branch: Auto Shop	Location: Headquarters area	
JOB TITLE: Changing flat tire on 2000 Dodge Durango	JHA Number: 1	Page 1 of 2		Approved By: Auto Shop Foreman
Job Performed By: Motor Vehicle Operator	Analysis By: Safety Committee	Supervisor: Auto Shop Foreman		
Required Standards and General Notes:	Read the owners manual pages 166 to 172. Study diagram and instructions on the bottom of the cover for the jack and tool storage area showing proper jack placement and the way to use the jack extension and handle.			
Required Personal Protective Equipment:	(Summer conditions) Gloves and coveralls			
Tools and Equipment:	(Summer conditions) Spare tire, jack, jack handle and extension, lug wrench, emergency markers			
Sequence of Job Steps	Potential Hazards/Injury Sources	Safe Action or Procedure		
1. Parking car	1. SB – worker struck by passing car	1. Park car as far from the edge of roadway as possible. Park vehicle on a firm level surface. Turn on flashers. Set the parking brake and place the gear selector in PARK. Set out emergency markers. Chock both the front and rear of the tire diagonally opposite the jacking position.		
2. Getting equipment	2. none	2. The jack and the tire changing tools are stowed in the floor compartment behind the rear seat, just forward of the lift gate opening. Jack usage instructions are shown on a label mounted on the underside of the cover. Put on gloves and coveralls.		
3. Getting the spare tire	3. CI – fingers caught between car body & winch knob. O – while operating winch	3. Use the jack wrench extension on the winch nut to lower the spare tire. Turn the wrench in a counterclockwise direction to lower the tire. Continue to turn the wrench until the spare tire is on the ground and can be pulled out from under the car.		
4. Properly place jack and remove wheel cover	4. CB – fingers can be caught between the wheel and the spade end of the wheel wrench O – force needed to loosen wheel nuts	4. Keep the fingers and hands clear of the pinch points between the tire and the spade end of the wheel wrench when prying off the wheel cover.  Using the wheel wrench, loosen, but do not remove, the wheel nuts by turning them counterclockwise one turn while the wheel is still on the ground.  Always place jack on a firm level surface. When changing a front tire, place the jack under the frame rail as close as possible behind the tire. When changing a rear tire, place the jack under the axle as close as possible to the shock bracket.		

Injury Source for the middle column: SB= Struck-By, SA = Struck-Against, CBY = Contacted-By, CI = Caught-In, CB = Caught-Between, CO = Caught-On, FB = Fall-to-Below, CW = Contacted-With, O = Overexertion or Repetitive Motion, FS = Fall-to-Surface, BR = Bodily reaction, E = Exposure to Chemical, Noise, etc.

JOB HAZARD ANALYSIS – FORM 2.2			
JHA – CONTINUATION SHEET		JHA Number: 1	Page 2 of 2
Sequence of Job Steps	Potential Hazards/Injury sources	Safe Action or Procedure	
5. Lift the car	<p>5. O – force needed to turn jack handle</p> <p>O – force needed to remove flat tire and install new one</p> <p>CB – vehicle falls crushing worker</p>	<p>5. Insert the crank handle into the jack and raise the vehicle, turning clockwise, until the tire just clears the ground. Place wheel wrench securely on each wheel nut. Press down in a counter-clockwise direction and remove the wheel nuts (place all nuts in one location) and pull the flat tire off. Install the spare tire and wheel nuts with the cone-shaped end of the nuts toward the wheel. Lightly tighten the nuts. Never get any part of your body under a vehicle that is on a jack. Be alert because the car could possibly fall at this time. Avoid injury to the back by safely lifting the tires. Use the arm and leg muscles and do not rotate/twist the back while lifting.</p>	
6. Lowering the car, tighten lug nuts	<p>6. O – force needed to tighten wheel nuts</p> <p>CB – vehicle falls crushing worker</p>	<p>6. Lower the car slightly so the tire is touching the ground. Use the wheel wrench, turning clockwise, to tighten the wheel nuts. Tighten the nuts using a star pattern (top nut, then bottom nut, then left, then right until all are tightened). Do not overtighten or leave any loose wheel nuts. Using the crank handle, lower the car all the way down. Install the wheel cover correctly and secure and keep the fingers clear of the pinch points between the wheel cover and the tire.</p>	
7. Replace tools/tire	<p>SB – passing vehicle</p>	<p>7. Remove the handle from the jack. Return the tool and jack to the storage area. Remove the chocks from the wheel. The flat tire can be raised into position under the car by using the winch. Turn the winch nut clockwise to raise the tire and make sure the tire is raised high enough to be securely fastened under the car. Turn off flashers, and, after signaling, pull back on the highway when traffic flow will permit.</p>	

Injury Source for the middle column: SB= Struck-By, SA = Struck-Against, CBY = Contacted-By, CI = Caught-In, CB = Caught-Between, CO = Caught-On, FB = Fall-to-Below, CW = Contacted-With, O = Overexertion or Repetitive Motion, FS = Fall-to-Surface, BR = Bodily reaction, E = Exposure to Chemical, Noise, etc.



Appendix C - Job Hazard Analysis - Form 1 – page 1

JOB HAZARD ANALYSIS (JHA)		Date:	New JHA Revised JHA
Park Unit:	Division:	Branch:	Location:
JOB TITLE:		JHA Number:	Page ____ of ____
Job Performed By:	Analysis By:	Supervisor:	Approved By:
Required Standards and General Notes:			
Required Personal Protective Equipment:			
Tools and Equipment:			
Sequence of Job Steps	Potential Hazards/ Injury sources	Safe Action or Procedure	

Injury Source for the middle column: SB= Struck By, SA = Struck Against, CBY = Contacted By, CI = Caught in, CB = Caught Between, CO = Caught On, FB = Fall to Below, CW = Contacted With, O = Overexertion or Repetitive Motion, FS = Fall at the Same Level, BR = Bodily reaction E = Exposure to Chemical, Noise etc.

Appendix C - Job Hazard Analysis - Form 1 – page 2

JHA - CONTINUATION SHEET		JHA Number:	Page ____ of ____
Sequence of Job Steps	Potential Hazards/Injury Source	Safe Action or Procedure	

Hazard Selection for the middle column: SB= Struck By, SA = Struck Against, CBY = Contacted By, CI = Caught in, CB = Caught Between, CO = Caught On, FB = Fall to Below, CW = Contacted With, O = Overexertion or Repetitive Motion, FS = Fall at the Same Level, BR = Bodily reaction E = Exposure to Chemical, Noise etc.

Appendix D - Job Hazard Analysis - Form 1 – page 1

JOB HAZARD ANALYSIS (JHA)		Date:	New JHA Revised JHA
Park Unit:	Division:	Branch:	Location:
JOB TITLE:		JHA Number:	Page _____ of _____
Job Performed By:	Analysis By:	Supervisor:	Approved By:
Required Standards and General Notes:			
Required Personal Protective Equipment:			
Tools and Equipment:			
Sequence of Job Steps	Potential Hazards/ Injury sources	Safe Action or Procedure	

Injury Source for the middle column: SB= Struck By, SA = Struck Against, CBY = Contacted By, CI = Caught in, CB = Caught Between, CO = Caught On, FB = Fall to Below, CW = Contacted With, O = Overexertion or Repetitive Motion, FS = Fall at the Same Level, BR = Bodily reaction E = Exposure to Chemical, Noise etc.

Appendix D - Job Hazard Analysis - Form 1 – page 2

JHA - CONTINUATION SHEET		JHA Number:	Page ____ of ____
Sequence of Job Steps	Potential Hazards/Injury Source	Safe Action or Procedure	

Hazard Selection for the middle column: SB= Struck By, SA = Struck Against, CBY = Contacted By, CI = Caught in, CB = Caught Between, CO = Caught On, FB = Fall to Below, CW = Contacted With, O = Overexertion or Repetitive Motion, FS = Fall at the Same Level, BR = Bodily reaction E = Exposure to Chemical, Noise etc.